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Indian Standard

GENERAL REQUIREMENTS OF MAIN DECK CONTAINER/PALLET LOADER FOR AIRCRAFT

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GENERAL REQUIREMENTS OF MAIN DECK CONTAINER/PALLET LOADER FOR AIRCRAFT

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*Shri P. R. Chandrasekhar was the Chairman for the meeting in which this standard was finalized.

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Indian Standard

GENERAL REQUIREMENTS OF MAIN DECK CONTAINER/PALLET LOADER FOR AIRCRAFT

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 30 March 1983, after the draft finalized by the Air Cargo Handling Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 This standard is based on ISO/DIS 6967 Aircraft — Wide body freighter aircraft main deck container/pallet loader — Functional requirements to achieve international coordination on the subject.

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1. SCOPE

1.1 This standard specifies the general requirements for a self-propelled loader capable of raising pallets and containers with basic dimensions and maximum masses as follows:

Length mm	*Width* mm	*Height* mm	*Gross Mass, Max* kg
3 175	2 438	from 508 to 5 540	6 804
3 175	2 235		6 033
2 991	2 438		5 670
6 058	2 438		1 340

2. DIMENSIONS

2.1 On an adequate chassis, the loader shall provide two platforms:

a) A front platform, which is positioned at the applicable aircraft door and which remains at this position during the loading/unloading operation; and

b) A main platform for up and down movement between 483 and 5 540 mm.

2.2 The overall height of the entire unit shall not exceed 3 600 mm when being driven. The height of the front platform (top of rollers) shall not exceed 2 413 mm in the fully down position.

2.3 The overall dimensions of the unit shall be kept to a minimum.

2.4 The loader shall support simultaneously, at their maximum gross mass, two 2 438 × 3 175 mm containers/pallets on the main platform and one 2 438 × 3 175 mm container/pallet on the front platform.

2.5 The unit shall have adequate clearance underneath from any portion of the equipment to the ground when negotiating two ramps that intersect at 5°.

3. PLATFORM, GUIDE RAILS AND STOPS

3.1 The length of the front platform shall be adequate to accept one 2 438 × 3 175 mm pallet lengthwise.

3.2 The length of the main platform shall be adequate to accept two 2 438 × 3 175 mm pallet one behind the other, lengthwise, on the platform.

3.3 The width of both platforms shall be adequate to accept a pallet with its 3 175 mm dimension across the platforms.

3.4 The surface of both platforms shall allow for longitudinal and lateral movement of load units.

3.5 The loader shall be designed for powered end and side loading of load units:

a) On the front platform the longitudinal movement shall be effected by means of a powered system; and

b) On the main platform the longitudinal and lateral movement shall be effected by means of a powered system. The main platform powered system shall be divided into two sections, each of which will accept one 3 175 × 2 438 mm load unit. It shall be possible to control these sections individually or simultaneously.

3.6 The powered system shall be able to drive load units at a speed of approximately 18·3 m/min. Adjustment to a reduced speed shall be possible.

3.7 The front platform shall be adjustable to the following changes in aircraft attitude with an accuracy of:

a) Pitch and roll — half a degree range ± 2° (*Max*), and

b) Height — 6·4 mm.

NOTE — It is recommended that the front platform be capable of being attached to the aircraft so as to compensate for changes in aircraft attitude.

3.8 The front platform shall be designed not to interfere with the opening and closing of the aircraft door.

3.9 Removable guide rails, fixed on the main platform and adjustable on the front platform to the container/pallet widths of 2 438 mm and 3 175 mm shall be provided as follows:

a) *Front Platform* — Along the whole length of both sides of the platform to exactly guide load units into the aircraft. They shall be adjustable laterally to align with the appropriate in-aircraft guides.

b) *Main Platform* — 3 175 mm apart along both sides of the platform. The guide rails shall consist of two sections positioned adjacent to the powered sections of the platform and shall be able to be operated independently. All four sections shall automatically extend when the main platform starts moving upward and remain in this position. When the main platform is being lowered and it reaches the height of 1·52 m from the ground, it shall be possible for the operator to control the retraction of the guide rails.

3.10 Stops — Stops shall be provided as given below:

a) *Front Platform* — Automatic stops shall be provided at the end adjacent to the main platform. These stops shall raise the moment the main platform starts moving down and shall retract when the upcoming main platform is level with the front platform. Operation of the main platform must be inhibited if the stops are not extended.

b) *Main Platform* — Stops shall be provided at the forward and aft end and at the separation line between the two powered sections.

3.10.1 The stop adjacent to the front platform shall automatically retract as the main platform lines up with the front platform. The stop between the two sections shall be controlled by the operator individually.

3.10.2 The rear stop shall be of the override type (loading direction). The rear stop shall automatically retract when a load unit is being transferred longitudinally into the main platform and shall automatically extend as soon as the load unit has passed.

3.10.3 For movement of load units off the main platform end in a longitudinal direction the retraction of the rear stop shall be controlled by the operator. However, it shall only be possible to retract the rear stop when the main platform is stopped at any height between 0·51 and 1·52 m above the ground.

3.10.4 All stops and fixed guide rails shall have a minimum height of 102 mm. Retractable guide rails shall have a height of not less than 51 mm.

4. PLATFORM OPERATION AND LOADING

4.1 It shall be possible to adjust the container/pallet in a lateral direction on the front platform.

4.2 Platform elevating systems shall be able to hold both platforms at maximum height with full specified continuous lift capacity with no considerable height decrease for 30 min with and without engine running.

4.3 Both the front and main platform elevating mechanisms shall incorporate safety features to prevent sudden collapse in the event of system failure.

4.4 Load movement in and out of the aircraft shall be carried out by one person (operator). The unit shall be capable of being positioned and operated by one person. The operator shall be able to open and close the aircraft door from the front platform.

4.5 The time taken for the main platform to reach maximum height from the lowered position and vice versa, that is, one complete cycle, shall not exceed one minute.

4.6 The front platform shall be accessible from the ground at all times.

4.7 It shall not be possible to alter the height of either platform when containers/pallets are bridging the platforms.

5. MOBILITY AND STABILITY

5.1 The unit shall be capable of being driven at speeds up to 16 km/h for at least 3 km. The unit does not require the capability of being driven when loaded.

5.2 Power steering shall be provided.

5.3 The unloaded unit shall be able to start moving on a 5° slope.

5.4 The swept radius shall be kept to a minimum to allow the loader to be easily positioned at the aircraft and to be driven on airport service roads.

5.5 For a final safe positioning at the aircraft door a slow positive non-jerking speed shall be required.

5.6 Power operated adjustable stabilizers shall be installed in order to provide for the stability required for loading/unloading operations.

5.7 The fully loaded unit in the raised position with stabilizers extended shall be safe in wind velocities up to 129 km/h. In the lowered position, the loader will remain stable in wind velocities up to 193 km/h.

5.8 It shall not be possible:

a) to activate the transfer system and to raise the main platform from the full down position if the stabilizers are not extended,

b) to drive the loader when the stabilizers are extended, and

c) for stabilizers to collapse in the case of a system failure.

6. CONTROLS

6.1 All controls necessary to move and position the loader shall be located in the driver position.

6.2 In addition, an electrical remote control box of minimum mass and size shall be provided to allow control of both platforms and complete loading/unloading processes from the front platform in an elevated position or from the aircraft door area.

6.3 Ample lighting shall be required for night operations to illuminate the platforms and close surroundings.

6.4 Normal system warning and indicator lights shall be provided.